

Mixed Circuits

Lab is due Monday (start of class)

Test is Wednesday (ch 22, 23 no Capacitors)

Review is Friday

Finals Monday is 1-2 1-1 June 18th

Tuesday 2-4, 2-3 after noon June 19th

Wednesday 1-4, 1-3 June 20th

Thursday 2-2, 2-1

Friday Numeracy Test 2 sessions

P460

Q14 a) $I = \frac{V}{R} = \frac{220V}{11\Omega}$
 $= 20A$

b) $P = VI = \frac{\text{energy}}{T}$

$\text{energy} = 220V \times 20A \times 30s$
 $= 1.32 \times 10^5 J$

Efficient

70% efficient

c) $Q = mc\Delta T$

$(0.7) \cdot 1.32 \times 10^5 J = 1.2 kg (4180 \frac{J}{kg \cdot ^\circ C}) \Delta T$

$\Delta T =$

$$0.7 \times 132000 / (1.2 \times 4180) = 18.4211$$

18°C

Give these a try:

p484 Q13-15

p484 CR 2.1-2.4

Review for Final:

p688-

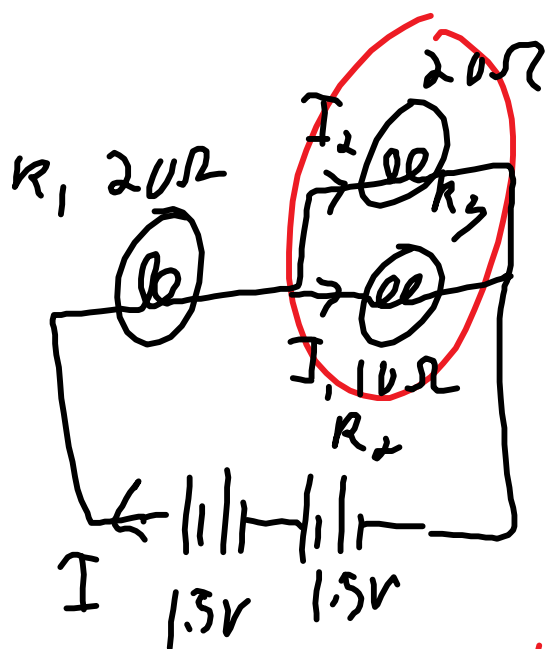
Ch2,3,4,5,8(Fg only), 9-12,
14-18, 22,23, 30,31

Mixed Circuit

eg. Two 1.5V batteries are in series with each other, then connect to a 20.0Ω light bulb then a 10.0Ω and 20.0Ω resistor in parallel with each other.

Determine

- a) R_T b) I c) V across and current through the 10Ω resistor d) which bulb is brighter? (P) e) if you add a 5.0Ω resistor in parallel across the 10Ω resistor, how does the brightness of each bulb change?



$$R_T = ?$$

$$\frac{1}{R_{T_{parallel}}} = \frac{1}{20} + \frac{1}{10}$$

$$R_{T_{parallel}} = \frac{20}{3} = 6.\bar{6} \Omega$$

$$I = \frac{V}{R_T} = \frac{3.0V}{26.7\Omega}$$

$$series R_T = 20\Omega + 6.7\Omega$$

$$= 26.7\Omega$$

$$3/(26.66666) = 0.1125$$

$$0.11A$$

$$V = V_1 + V_2 \text{ or } V = V_1 + V_3$$

$$3.0\text{ V} = 0.1125^{\text{A}}(20\Omega) + V_2 \quad *$$

$$V = 3 - (0.1125 \times 20) = 0.75 \text{ V}$$

$$I = 0.75 / 10 = 0.075 \text{ A through the } 10\Omega \text{ resistor}$$